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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/657,162	09/09/2003	Takahiro Fujita	501.43117X00	1026

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EXAMINER	
REILLY, SEAN M	

ART UNIT	PAPER NUMBER
2153	

DATE MAILED: 12/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/657,162	FUJITA ET AL.	
	Examiner	Art Unit	
	Sean Reilly	2153	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 December 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *9/9/03, 12/29/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This office action is a first action on the merits of this application. Claims 1-13, amended on 10/6/2003, are presented for further examination. A petition to make special (accelerated examination) was granted with regard to this application on April 4th, 2005.

Priority

1. Applicant claims priority to Japan application 2003-198183, filed July 17, 2003.

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

3. The effective filing date for the subject matter defined in the pending claims in this application is 7/17/2003.

Information Disclosure Statement

4. The information disclosure statements (IDS) submitted on 9/9/03 and 12/29/04 are in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statements are being considered by the examiner.

Specification

5. The abstract of the disclosure is objected to because the abstract is incomprehensible as written. Specifically the 3rd ¶ of the abstract is unclear and must be rewritten. Applicant should clarify what renders *the storage device* as *new* and/or *old*. Further it is not clear whether *the storage device* represents one device or multiple devices. One of ordinary skill in the art should

not have to reference the specification for clarification of the abstract. Applicant is reminded that the abstract must be less than 150 words.

6. The substitute specification submitted on 10/6/2003 has been entered.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

7. Claims 12 and 13 are rejected under 35 U.S.C. 101 as the claimed invention is directed to non-statutory subject matter.

With regard to claim 12, Applicant claims computer program, which is software per se. A software program which is not tangibly embodied on a computer readable medium, is merely a manipulation of abstract ideas and thus non-statutory. Applicant may overcome this rejection by tangibly embodying the claimed program, for instance on a memory medium (as defined by Applicant's specification pg 20, 2nd ¶). Any amendment by Applicant that embodies the claimed program on a *communication medium* or equivalent thereof, as defined by Applicant's specification pg 20, 2nd ¶, will not overcome this 101 rejection.

With regard to claim 13, the claimed managing program is tangibly embodied on a memory medium. However, the claim fails to provide a proper nexus between the management program and the claimed procedures. As written the claimed procedures may simply be an *intended use* for the managing program. Thus, claim 13 merely claims a computer program that fails to accomplish anything or in other words has no utility. It is clear that Applicant intends to claim a computer program comprising the claimed procedures. Applicant may overcome this

rejection by properly providing a nexus between the management program and the claimed procedures. For instance by adding language which expressly states that the computer program comprises the following procedures: a procedure 1, a procedure 2, ... and so on.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

10. With regard to claims 1, 12, and 13, the limitation "collecting a storage area in which the difference between the capacity of said allocated storage area and said estimated capacity utilization when the capacity of said allocated storage area is greater than said estimated capacity utilization" is indefinite. First, the term "when" is understood to be synonymous with the term "if." Accordingly it is not clear whether or not the applicant intends for this limitation to be a positive recitation. It is presumed that the Applicant does for the purposes of the prior rejection set forth below. Second, the term "collecting" renders the claim indefinite. It is presumed the term "collecting" is synonymous with the term "identifying." Third, it is not clear what is actually being collected in this limitation. It is presumed that a storage area is collected, where

the size of the collected storage falls within the range of sizes from the estimated capacity utilization to the allocated storage area. For example if the estimated capacity utilization is 500mb and the allocated storage area is 700mb, than the collected storage area can be any size within 500mb to 700mb. In general this limitation is cumbersome and should be rewritten in clearer terms.

11. With regard to claim 8, the limitation "a second storage area of low cost" is indefinite since it is not clear what renders a storage area *low cost*.

12. With regard to claim 9, the limitation a "plural storage apparatus" is indefinite. Also the limitation "a memory for holding" is indefinite. It is presumed a memory *stores*.

13. With regard to claim 13, as indicated in the above 101 rejection, the claim as written is ambiguous since it is not clear whether or not the management program comprises the claimed procedures. Applicant should add language that expressly states that the computer program comprises the following procedures: a procedure 1, a procedure 2, ... and so on, in order to resolve this issue.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

14. Claim 1, 7, and 9-13 rejected under 35 U.S.C. 103(a) as being unpatentable over Chellis et al. (U.S. Patent Number 6,901,446; hereinafter Chellis) and Cannon et al. (U.S. Patent Number 6,230,247; hereinafter Cannon).

With regard to claims 1, 12, and 13, Chellis disclosed a managed method to be executed by a management computer connected to a computer and storage apparatus through a network, comprising the steps of:

Allocating a storage area of predetermined capacity from the storage area of said storage apparatus to said computer (e.g. any already allocated storage area such as the exemplarily storage area of 100mb, Col 5, lines 1-2);

Obtaining the capacity utilization of each storage area allocated to said computer (the utilization of all storage allocations are obtained, Col 14, lines 34-40);

Calculating an estimated capacity utilization (predicted usage of the storage resources, Col 14, lines 34-40).

Chellis disclosed substantial features of the claimed invention. However, Chellis failed to specifically recite the estimated capacity utilization is estimated from the *capacity utilization of each storage area allocated to said computer.* Chellis also failed to specifically recite allocating a storage area greater than said estimated capacity utilization and less than the capacity of said allocated storage area when the capacity of said allocated storage area is greater than said estimated capacity utilization.

Chellis's system is analogous with Applicant's system in that both systems dynamically allocate storage allocations to prevent and/or reduce **over allocation**. In Chellis's system when

it is determined that a particular allocation is *over allocated* (i.e an estimated utilization is less than the actual allocation), then Chellis's system essentially reduces the capacity of that particular allocation by releasing that capacity (the capacity difference between the actual allocation and the estimated utilization) for use in other allocations (see inter alia, Col 5, lines 1-17). Even though Chellis fails to explicitly reduce the allocation size, such an allocation reduction scheme was widely known in the art, as evidenced by Cannon. In an analogous art, Cannon disclosed a similar dynamic storage allocation system (abstract). In Cannon's system an estimated capacity utilization is estimated from the capacity utilization of each storage area allocated to a particular computer (client profile, Col 5, lines 53-67). When Cannon's system discovers that a particular allocation is *over allocated* the system then deceases the capacity allocated to that particular storage allocation in order to release the unused capacity for use by other allocations (Col 7, lines 25-45). The capacity allocated is decreased to any amount within the capacity range of actual utilization to estimated utilization (Col 7, lines 25-45). Given the teachings of Cannon, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the Chellis system to utilize a re-allocation scheme as disclosed by Cannon within the Chellis system, so that other allocations in the system are able to utilize the unused storage. By allowing other allocations to use the unused capacity, the overall storage capacity is more efficiently utilized.

With regard to claim 7, Chellis and Cannon disclosed judging whether the collection of a storage area is possible on the basis of a flag (status of resources) for every allocated storage area (Col 14, lines 28-40).

With regard to claim 9, Chellis disclosed said management computer is connected to a storage apparatus (e.g. Figure 2, the resource allocator is connected to the various resources), and a memory for storing a device management table for managing the allocating states of the storage area of said plural storage apparatus is provided, said step of allocation said storage area to said computer comprises allocating said storage area to said computer on the basis of said device management table (see inter alia, the steps for handling an allocation request, Col 10, lines 44-63).

With regard to claim 10, Chellis disclosed said step of calculating said estimated capacity utilization comprises calculating the estimated capacity utilization on the basis of the kind of an application for utilizing each storage area, access characteristics or the degree of importance of stored data in addition to the capacity utilization of said each storage area (for instance Chellis accounts for any application and resource dependencies during allocation, Col 12, lines 9-38 and Col 14, lines 56-64).

With regard to claim 11, Cannon disclosed on the basis of the capacity of said allocation storage area and said estimated capacity utilization, a proper state of the capacity of said allocated storage area is displayed (Cannon Col 3, lines 48-49, monitoring any system data, for instance the state of resources Chellis Col 9, lines 39-67).

15. Claim 2-3, 5-6, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chellis et al. (U.S. Patent Number 6,901,446; hereinafter Chellis) and Cannon et al. (U.S. Patent Number 6,230,247; hereinafter Cannon) and Cannon et al. (U.S. Patent Number 6,098,074; hereinafter Cannon_2).

With regard to claims 2, 3, 5, 6, and 8 Cannon disclosed allocating a storage area of capacity equal to or greater than said estimated capacity utilization and smaller than the capacity of said allocated first storage area to said computer (Cannon Col 7, lines 30-45) however neither Chellis nor Cannon disclosed *copying* the allocation to a second allocation during the reallocation process. Nonetheless it was widely known in the art to copy allocations to other allocations when adjusting the capacity of a particular allocation, as evidenced by Cannon_2. In an analogous storage management system Cannon_2 disclosed copying files of one allocation to another allocation and then releasing the first allocation (Col 14, lines 43-63). Cannon_2 further disclosed that such a managed file effective for the reclamation of storage (i.e. adjusting allocation capacity sizes) (Col 14, liens 42-46). Thus, it would have been to one of ordinary skill in the art to incorporate the copying procedure disclosed by Cannon_2 within the combined Chellis and Cannon system, in order to properly execute the allocation capacity reduction.

With further regard to claim 8, the capacity allocated is addressed with respect to claim 1 where Cannon not only identifies an allocation but also completes the act of *allocating* the allocation. Additionally Chellis disclosed using low cost storage media (i.e. hard disk storage can be used as opposed to typically more expensive storage, such as RAM). With regard to the limitation assigning a 0 as the write I/O number value for archive, the Examiner takes Official Notice that assigning a write I/O value of 0 to new allocations was widely known in the art at the time of the invention. Further it would have been obvious to one of ordinary skill in the art at the time of the invention to assign a write I/O value of 0 to the new allocation, so that the allocation can be identified as a possible candidate for archive if future writes to that allocation do not occur.

16. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chellis et al. (U.S. Patent Number 6,901,446; hereinafter Chellis) and Cannon et al. (U.S. Patent Number 6,230,247; hereinafter Cannon) and Cannon et al. (U.S. Patent Number 6,098,074; hereinafter Cannon_2) and further in view of Collins et al. (U.S. Patent Number 6,898,634; hereinafter Collins).

With regard to claim 4, the combined system of Chellis, Cannon, and Cannon2 failed to disclose reducing the size of a file system made in the first storage area before the data copying is executed by the storage apparatus. Nonetheless it was widely known to reduce the size of a file system, as evidenced by Collins. In an analogous storage management system Collins disclosed reducing the size of a file system in order to reduce the amount of capacity required and thereby make more storage capacity available for common use (Col 7, line 61 – Col 8, line 6). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to reduce the size of a file system prior to copying in the combined system of Chellis, Cannon, and Cannon2, in order to reduce the amount of capacity required and thereby make more storage capacity available for common use.

Conclusion

17. The prior art made of record, in PTO-892 form, and not relied upon is considered pertinent to applicant's disclosure.

18. This office action is made **NON-FINAL.**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sean Reilly whose telephone number is 571-272-4228. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glen Burgess can be reached on 571-272-3949. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

12/14/2005

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